

WHAT IS CLAIMED IS:

1. A radio communication apparatus in a radio packet communication system for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information, comprising:
 - 5 estimating means for estimating a variation-with-time characteristic of the radio link quality using the radio link quality information reported by the packet receiving side;
 - 10 changeover means for adaptively changing over a target error rate using the variation-with-time
 - 15 characteristic;
 - 20 deciding means for deciding a modulation scheme and/or encoding rate, in such a manner that packet error rate becomes equal to the target error rate, using the radio link quality information as well as reception success/failure information reported by the packet receiving side; and
 - 25 means for transmitting a packet based upon the modulation scheme and/or encoding rate decided.
2. The apparatus according to claim 1, wherein said estimating means estimates the variation-with-time characteristic of the radio link quality by calculating correlation of the radio link quality at prescribed time intervals.
3. A radio communication apparatus in a radio packet communication system for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information, comprising:
 - 30 estimating means for estimating a variation-with-time characteristic of the radio link quality using a pilot symbol received from the packet receiving side;
 - 35 changeover means for adaptively changing over a target error rate using the variation-with-time characteristic;
 - 40 deciding means for deciding a modulation scheme and/or encoding rate, in such a manner that packet error rate becomes equal to the target error rate,

using the radio link quality information as well as reception success/failure information reported by the packet receiving side; and

means for transmitting a packet based upon the
5 modulation scheme and/or encoding rate decided.

4. The apparatus according to claim 2, wherein said estimating means estimates the variation-with-time characteristic of the radio link quality by calculating correlation of a receive pilot symbol at prescribed
10 time intervals.

5. The apparatus according to claim 1 or 3, wherein said changeover means has a correspondence table indicating correspondence between the variation-with-time characteristic and the target error rate and
15 changes over the target error rate adaptively based upon the variation-with-time characteristic using said table.

6. The apparatus according to claim 1 or 3, wherein said deciding means tabulates data related to
20 modulation scheme and/or encoding rate in correspondence with the radio link quality information, corrects the radio link quality information by increasing or decreasing it based upon reception success/failure by an amount that conforms to the
25 target error rate, and obtains data related to modulation scheme and/or encoding rate conforming to the radio link quality information after the correction thereof.

7. The apparatus according to claim 1 or 3, wherein
30 said changeover means has means for controlling the target error rate based upon a period at which the radio link quality information is reported from the receiving side.

8. A radio communication apparatus in a radio packet
35 communication system for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the
40 quality information, comprising:

estimating means for estimating throughput on the packet receiving side;

control means for adaptively controlling a target error rate so as to maximize the throughput;

means for deciding a modulation scheme and/or encoding rate, in such a manner that average error rate of a packet becomes equal to the target error rate, using the radio link quality information as well as 5 reception success/failure information reported by the packet receiving side; and means for transmitting a packet based upon the modulation scheme and/or encoding rate decided.

9. The apparatus according to claim 8, wherein said 10 estimating means estimates throughput THP in accordance with the following equation:

$$\text{THP} = \langle \text{TBS} \rangle \times (1-\text{PER})$$

where $\langle \text{TBS} \rangle$ represents the average value of transport block size and PER represents the target error rate.

15 10. The apparatus according to claim 8, wherein said control means increases the target error rate if present throughput is greater than immediately preceding throughput and decreases the target error rate if the present throughput is equal to or less than 20 the immediately preceding throughput.

11. A radio communication apparatus in a radio packet communication system for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and 25 adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information, comprising:

estimating means for estimating a variation-with-time characteristic of the radio link quality using a 30 pilot symbol received from the packet transmitting side;

changeover means for adaptively changing over a target error rate using the variation-with-time characteristic;

35 means for receiving a radio packet, which has undergone error detection and encoding, and performing error detection;

means for measuring a radio link quality value using the pilot symbol received;

40 means for correcting the radio link quality value using result of the error detection in such a manner that packet error rate becomes equal to the target error rate; and means for reporting the corrected radio link

quality value to a packet transmitting side as said radio link quality information.

12. The apparatus according to claim 11, wherein said estimating means estimates the variation-with-time
5 characteristic of the radio link quality by calculating correlation of a receive pilot symbol at prescribed time intervals.

13. The apparatus according to claim 11, wherein said changeover means has a correspondence table indicating
10 correspondence between the variation-with-time characteristic and the target error rate and changes over the target error rate adaptively using said table.

14. The apparatus according to claim 11, wherein said changeover means has means for controlling the target
15 error rate based upon measurement period of the measured radio link quality value.

15. A radio communication apparatus in a radio packet communication system for feeding back radio link quality information, which has been measured on a
20 packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information, comprising:

means for measuring throughput of a received radio
25 packet;

control means for adaptively controlling a target error rate so as to maximize the throughput;

means for receiving a radio packet, which has undergone error detection and encoding, and performing
30 error detection;

means for measuring a radio link quality value;

means for correcting the radio link quality value using result of the error detection in such a manner that packet error rate becomes equal to the target
35 error rate; and

means for reporting the corrected radio link quality value to a packet transmitting side as said radio link quality information.

16. The apparatus according to claim 15, wherein said
40 estimating means estimates throughput THP in accordance with the following equation:

$$\text{THP} = \langle \text{TBS} \rangle \times (1-\text{PER})$$

where $\langle \text{TBS} \rangle$ represents the average value of transport block size and PER represents the target error rate.

17. The apparatus according to claim 15, wherein said control means increases the target error rate if present throughput is greater than immediately preceding throughput and decreases the target error
- 5 rate if the present throughput is equal to or less than the immediately preceding throughput.
18. The apparatus according to claim 11 or 15, wherein the transmitting side includes:
 - means for deciding a modulation scheme and/or
 - 10 encoding rate using the radio link quality value reported; and
 - means for transmitting a packet based upon the modulation scheme or encoding rate decided.